



UNITED STATES PATENT AND TRADEMARK OFFICE

**UNITED STATES DEPARTMENT OF COMMERCE**  
**United States Patent and Trademark Office**  
**Address: COMMISSIONER FOR PATENTS**  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,538	09/25/2003	Mohan Gurunathan	10021209-1	5460

7590 02/24/2006

AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

**EXAMINER**

LEE HWAS

ART UNIT	PAPER NUMBER
----------	--------------

2877

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/670,538	GURUNATHAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Andrew Hwa S. Lee	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 25 September 2003.

2a) This action is FINAL.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-20 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 25 September 2003 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1)  Notice of References Cited (PTO-892)

2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/10/05.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The listing of references in the Search Report is not considered to be an information disclosure statement (IDS) complying with 37 CFR 1.98. 37 CFR 1.98(a)(2) requires a legible copy of: (1) each foreign patent; (2) each publication or that portion which caused it to be listed; (3) for each cited pending U.S. application, the application specification including claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion, unless the cited pending U.S. application is stored in the Image File Wrapper (IFW) system; and (4) all other information, or that portion which caused it to be listed. In addition, each IDS must include a list of all patents, publications, applications, or other information submitted for consideration by the Office (see 37 CFR 1.98(a)(1) and (b)), and MPEP § 609.04(a), subsection I. states, "the list ... must be submitted on a separate paper." Therefore, the references cited in the Search Report have not been considered. Applicant is advised that the date of submission of any item of information or any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the IDS, including all "statement" requirements of 37 CFR 1.97(e). See MPEP § 609.05(a).

### ***Drawings***

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR

1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 1-20 are objected to because of the following informalities: In claims 1 and 18, the recitation “LO” is not defined. In claim 12, “LO” is defined as an *optical* local oscillator in the first clause and then is recited as being *electrical* in the fourth clause. Examiner suggests to not use abbreviations. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okoshi et al. (US 5,146,359) in view of van Deventer et al. (US 5,491,763).

With regards to claims 1, 7, and 18, Okoshi et al. (Okoshi hereinafter) show a double stage phase diversity receiver comprising:

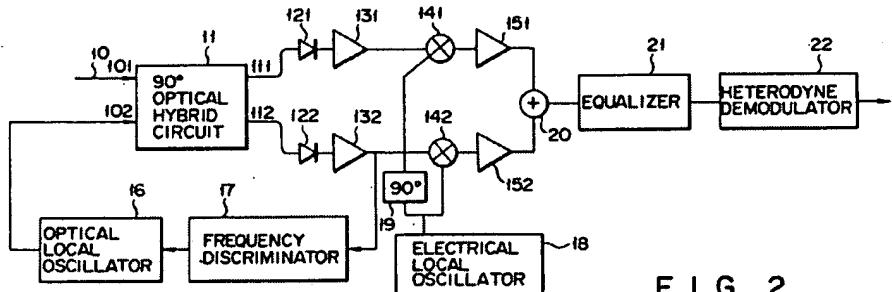


FIG. 2

an optical hybrid (11) for combining said optical signal and an optical local oscillator signal to generate phase-diverse components;

a plurality of photodiodes (121, 122) with each photodetector illuminated by a respective one of said phase-diverse components thereby mixing said optical signal and said optical local oscillator;

a plurality of mixers (141, 142) for mixing said filtered signals from said plurality of bandpass filters with an electrical LO signal; and

a signal processing module (22) that determines said spectral content utilizing signals from said plurality of mixers.

Okoshi does not expressly show the filters.

van Deventer et al. (van Deventer hereinafter) show an optical hybrid having a plurality of amplifiers, instead of a plurality of bandpass filters, having the equivalent function to suppress

noise. Since the functions are equivalent, it would have been a matter of design choice to one of ordinary skill in the art to use a bandpass filter for lower cost.

With regards to claims 2, 3, 19, and 20 please see column 5, lines 28+.

With regards to claims 4, please see column 9, lines 52+.

With regards to claims 6, please see amplifiers (131,132)

With regards to claim 8, the detectors are arranged serially with amplifiers in between and node (20) between the photodetectors.

With regards to claim 9 and 10, please see van Deventer's abstract.

With regards to claim 11, the use of bulk optical components (free space optical elements) are well known functional equivalents and one of ordinary skill in the art at the time of the invention would have used bulk optics for lower cost.

5. With regards to claims 12 and 15, Okoshi show a double stage phase diversity receiver comprising the steps of:

providing said optical signal (101) and an optical local oscillator signal (102) to inputs of an optical hybrid to generate phase-diverse components;

photodetecting (121, 122) said phase-diverse components thereby mixing said optical signal with said LO;

mixing (141, 142) said filtered signals with an electrical LO signal; and

determining (22) a spectral content of said optical signal utilizing signals from said mixing.

Okoshi does not expressly show the filtering.

van Deventer et al. (van Deventer hereinafter) show an optical hybrid having a plurality of amplifiers, instead of a plurality of bandpass filters, having the equivalent function to suppress noise. Since the functions are equivalent, it would have been a matter of design choice to one of ordinary skill in the art to use a bandpass filter for lower cost.

With regards to claims 13, please see column 5, lines 28+.

With regards to claim 14, please see amplifiers (131,132)

With regards to claim 16, the detectors are arranged serially with amplifiers in between and node (20) between the photodetectors.

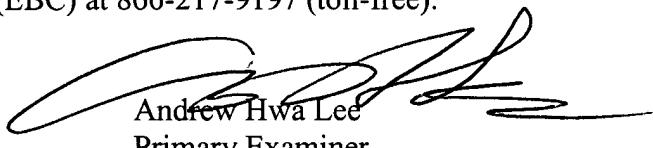
With regards to claim 17, please see van Deventer's abstract.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Hwa S. Lee whose telephone number is 571-272-2419. The examiner can normally be reached on Tue-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on 571-272-2800 ext 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Andrew Hwa Lee  
Primary Examiner  
Art Unit 2877